



Workplace heat stress, health and productivity - An increasing challenge for low and middle-income countries during climate change

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Abstract:

BACKGROUND: Global climate change is already increasing the average temperature and direct heat exposure in many places around the world. **OBJECTIVES:** To assess the potential impact on occupational health and work capacity for people exposed at work to increasing heat due to climate change. **DESIGN:** A brief review of basic thermal physiology mechanisms, occupational heat exposure guidelines and heat exposure changes in selected cities. **RESULTS:** In countries with very hot seasons, workers are already affected by working environments hotter than that with which human physiological mechanisms can cope. To protect workers from excessive heat, a number of heat exposure indices have been developed. One that is commonly used in occupational health is the Wet Bulb Globe Temperature (WBGT). We use WBGT to illustrate assessing the proportion of a working hour during which a worker can sustain work and the proportion of that same working hour that (s)he needs to rest to cool the body down and maintain core body temperature below 38 degrees C. Using this proportion a 'work capacity' estimate was calculated for selected heat exposure levels and work intensity levels. The work capacity rapidly reduces as the WBGT exceeds 26-30 degrees C and this can be used to estimate the impact of increasing heat exposure as a result of climate change in tropical countries. **CONCLUSIONS:** One result of climate change is a reduced work capacity in heat-exposed jobs and greater difficulty in achieving economic and social development in the countries affected by this somewhat neglected impact of climate change.

Source: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2799237>

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

Climate Change and Human Health Literature Portal

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Injury, Other Health Impact

Other Health Impact: heat stress

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Other Projection Model/Methodology: Discussion only

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status, Workers

Resource Type:

format or standard characteristic of resource

Review

Resilience:

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

Timescale:

time period studied

Time Scale Unspecified